

DUAL CURE COATING COMPOSITION AND PROCESSES FOR USING THE SAME

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ABSTRACT

The dual cure coating composition requires electromagnetic radiation and heat energy to cure and comprises a radiation curable component (a1), a thermally curable binder component (a2), and a thermally curable crosslinking component (a3). Radiation curable component (a1) polymerizes upon exposure to electromagnetic radiation, and comprises at least two functional groups (a11) comprising at least one bond activatable with electromagnetic radiation, and one or more isocyanate-reactive functional groups (a12). Thermally curable binder component (a2) polymerizes upon exposure to heat and has at least two isocyanate-reactive functional groups (a21) and substantially no functional groups (a22) having bonds activatable upon exposure to electromagnetic radiation. Third component (a3) comprises at least 2.0 isocyanate groups (a31) per molecule. The ratio of NCO groups to the sum of isocyanate-reactive functional groups (a12) and (a21) is less than 1.30. The invention provides methods of making coated surfaces that have optimum porosity sealing and adhesion.

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